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Sent: 2/6/2017 8:00:51 PM
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Subject: STICS: Clearance Completion: #ORD-018545: Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina

The clearance for this product is complete:

- **Product type, subtype:** Journal Article, Peer Reviewed
- **Product title:** Legacy and Emerging Perfluoroalkyl Substances Are Important Drinking Water Contaminants in the Cape Fear River Watershed of North Carolina
- **Author(s):** Sun, M.E. Arevalo, M. Strynar, A. Lindstrom, M. Richardson, B. Kearns, A. Pickett, C. Smith and D. Knappe
- **Initiator:** Brandy Manders, ord/nerl/ced
- **ORD Tracking Number:** Tracking # ORD-018545
- **Product Description / Abstract:** Long-chain per- and polyfluoroalkyl substances (PFASs) are being replaced by short-chain PFASs and fluorinated alternatives. For ten legacy PFASs and seven recently discovered perfluoroalkyl ether carboxylic acids (PFECAs), we report (1) their occurrence in the Cape Fear River (CFR) watershed, (2) their fate in water treatment processes, and (3) their adsorbability on powdered activated carbon (PAC). In the headwater region of the CFR basin, PFECAs were not detected in raw water of a drinking water treatment plant (DWTP), but concentrations of legacy PFASs were high. The U.S. Environmental Protection Agency's lifetime health advisory level (70 ng/L) for perfluorooctanesulfonic acid and perfluorooctanoic acid (PFOA) was exceeded on 57 of 127 sampling days. In raw water of a DWTP downstream of a PFAS manufacturer, the mean concentration of perfluoro-2-propoxypropanoic acid (PFPrOPrA), a replacement for PFOA, was 631 ng/L (n = 37). Six other PFECAs were detected, with three exhibiting chromatographic peak areas up to 15 times that of PFPrOPrA. At this DWTP, PFECA removal by coagulation, ozonation, biofiltration, and disinfection was negligible. The adsorbability of PFASs on PAC increased with increasing chain length. Replacing one CF₂ group with an ether oxygen decreased the affinity of PFASs for PAC, while replacing additional CF₂ groups did not lead to further affinity changes.
- **Tracking and Planning**
 - Task ID:
 - Task: N/A - Not Applicable
 - Product Title: N/A - Not Applicable
 - Product Description: N/A - Not Applicable
 - Project:
 - Topic:
 - Research Program Area:
- **HISA? ISI? High Profile?:** High Profile and/or Policy Relevant (not HISA or ISI)
- **QA form attached in STICS?:** Not Applicable
- **QAPP Reference:** N/A
- **Keywords:**

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- water treatment
- occurrence and fate
- perfluoroalkyl

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